INVITATION FOR BID

IFB NUMBER: 002-008

DATE OF THIS REQUEST: December 7, 2001

DESCRIPTION: Industrial Park Gravity Sewer

BID OPENING DATE: December 21, 2001, 2:00 P.M.

For technical information relating to this IFB, please contact:

Christopher T. Bogert
Project Engineer
360 Falmouth Street
Warrenton, VA 20188
540-347-1858
Email: cbogert@ci.warrenton.va.us

For other information relating to this IFB, please contact:

Director of Purchasing
18 Court Street
P.O. Drawer 341
Warrenton, VA 20188
540-347-1102

The Town of Warrenton is accepting bids from qualified Class A contractors to construct, including all grading, seeding, mulching and erosion control requirements, the following storm water drainage improvements to the Town of Warrenton:

1. 1589 Linear Feet of 8" SDR 35 sewer pipe.
2. 927 Linear Feet of 12" SDR 35 sewer pipe.
3. 10 Manholes.
4. Fill in existing Pump Basin and add 20 linear feet of Sewer Lateral.
5. 100 square yards of Asphalt Restoration

Special Terms and Conditions

The following Special Terms and Conditions shall govern this procurement:

a) Unless otherwise specified in the contract, the contractor shall furnish all the necessary personnel, materials, equipment, services and facilities necessary to complete the aforementioned description of work.

b) There will be a pre-bid conference and project showing held at the Town of Warrenton Public Works Facility at 360 Falmouth Street on Friday, December 14, 2001 at 10:00 AM. For directions please contact Kim Brown at 540-347-1858.

c) The project shall be complete within 75 calendar days of contract award. Liquidated damages in the amount of two hundred fifty (250) dollars per calendar day shall be assessed for failure to meet the completion date.

d) All bids are good for sixty (60) days from the date submitted. All bid prices are good for at least 200% increase of actual quantities over the estimated quantities listed on the bid sheet.

e) Unless all bids are canceled rejected, the Town reserves the right granted by Section 11-53 of the Code of Virginia to negotiate with the lowest responsive, responsible bidder to obtain a contract price within the funds available to the Town whenever such low bid exceeds the Town's available funds. For the purpose of determining when such negotiations may take place, the term "available funds" shall mean those funds which were budgeted by the Town for this contract prior to the issuance of the written Invitation for Bid. Negotiations with the low bidder may include both modifications of the bid price and the Scope of Work/Specifications to be performed. The Town shall initiate such negotiations by written notice to the lowest responsive, responsible bidder that its bid exceeds the available funds and that the Town wishes to negotiate a lower contract price. The time, place, and manner of negotiating shall be agreed to by the Town and the lowest responsive, responsible bidder.

BID DOCUMENTS

1. All bids shall be place on the enclosed "Bid Form".

2. Any person submitting a bid for construction work to any building, highway, sewer or other structure, the performance of which would require a contractor's license pursuant to the provisions of Sec. 54.1-1100 of the Code of Virginia, 1950, as amended, be required to submit **as part of their bid**:

    a. Satisfactory proof that such person is duly licensed under the terms of Sec. 54.1-1100 of the Code of Virginia, 1950, as amended, including the furnishing of any such contractor's number;

b. A written, sworn statement (notarized) that the person's license is in good standing and not subject to licensure as a contractor, subcontractor or owner/developer pursuant to Sec. 54.1-1100 of the Code of Virginia, 1950, as amended;

3. All bids shall be accompanied by a 5 (five) percent bid bond for the total bid as listed on the Bid Form.

SPECIFICATIONS

The Specifications as well as a complete set of plans for the Industrial Park Gravity Sewer Project are attached as Exhibit A.

GENERAL TERMS AND CONDITIONS

The General Terms & Conditions - Construction Projects, attached as Exhibit C, shall apply to this purchase/contract.

INSURANCE REQUIREMENTS

The contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the contractor, his agents, representatives, employees or subcontractors.

The contractor shall provide a certificate of insurance naming the Town of Warrenton as additional insured **and, if requested** a certified copy of said policy or endorsement(s) before commencement of contract. All insurance shall be placed with an insurer licensed to do business in the Commonwealth of Virginia. The underwriter shall be subject to the approval of the Town of Warrenton.

The contractor shall maintain limits no less than:

a. Commercial General Liability: $2,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage. The general aggregate limit shall apply separately to this project/location or the general aggregate shall be twice the required occurrence limit.

b. Automobile Liability: $2,000,000 combined single limit per accident for bodily injury and property damage.

c. Workers' Compensation and Employers Liability: Worker's Compensation as required by the Code of the Commonwealth of Virginia and Employers Liability limits of $1,000,000 per accident.

CONTRACTUAL REQUIREMENTS

The successful bidder will be required to enter into a formal contract with the Town of Warrenton. The Town's standard contract format shall be used and is attached in Exhibit B.

PAYMENT TERMS

Terms are net, 30 days from the date of invoice. Date of invoice is defined as the date received by the Town of Warrenton or the date approved by the Town's Director of Public Works, whichever is later.

LOCAL LICENCING REQUIREMENTS

The successful bidder will be required to hold a valid Town of Warrenton Business Professional Trade, or Occupational License prior to commencement of work.

BONDING REQUIREMENTS

Performance and payment bonds with a value of 100% of the contract amount will be required of the successful bidder and must be received by the Town of Warrenton prior to award of the contract.

ALL BIDS MUST BE SIGNED AND SEALED IN AN ENVELOPE PLAINLY MARKED ON THE OUTSIDE, "SEALED BID ON INDUSTRIAL PARK GRAVITY SEWER PROJECT TO BE OPENED DECEMBER 21, 2001, AT 2:00 P.M.", AND SHALL BE FORWARDED TO THE PURCHASING DIRECTOR.

Bids shall be opened and read aloud by the Purchasing Director at the appointed hour and date in the presence of the Public Works Director, or his designee and such of the bidders or members of the public as choose to attend.

The Town reserves the right to reject any and all bids and waive all informalities. In the event the Town manager chooses to reject all bids, the Town will re-advertise or make the purchase on the open market. The Town, through its duly adopted policies, may reject any or all bids.

The Town of Warrenton does not discriminate on the basis of handicapped status in admission or access to its programs and activities. Accommodations will be made for handicapped persons upon prior requests.

Attachment A

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GENERAL NOTES

This project is to be constructed in accordance with Virginia Department of Transportation Road and Bridge Specifications dated February 2001 and Road and Bridge Standards dated February 2001 as amended by contract provisions and these plans. All work shall be performed in accordance with the Town's Public Facilities Manual.

The Contractor shall notify the Town in advance of commencing work thereon, and in the event of the necessity of disrupting utility or other services, he shall notify the appropriate official in charge of such utility or other services and arrange for the disruption and restoration of such service in a manner which will result in a minimum of inconvenience to the parties concerned. Notification should be given at least 48 hours in advance of any utility disruption.

Underground utility locations are approximate. **The contractor shall field verify the vertical and horizontal locations of all existing utilities at least 48 hours prior to any excavation.** Differences shall be reported to the Town immediately.

Utility conflicts not designated as a bid item will be resolved by the utility company or handled as a Change Order under Section 104. The Town reserves the right to relocate its own utilities regardless of relocation items in Optional Bid.

A detailed traffic plan must be submitted prior to issuance of Notice to Proceed for the sanitary sewer installation and associated work on Industrial Park Road.

All storm sewer and sanitary structures shall have a minimum of 8" bedding (#57 stone). Backfilling of utility trenches and structure locations with clean stone is an acceptable construction alternative.

As part of the Final Inspection, the Town will TV camera/video tape the new line. If the Town elects to do so and a section of line must be replaced, the Town will charge the contractor $1 per linear foot to "re-TV" that section of line.

The work area shall be kept clean at all times and all materials and debris not intended for work shall be promptly removed. Broom clean the surface of all paved areas immediately after backfilling operations. Areas outside the construction site must be kept clean at all times, in particular Industrial Road and the Wilson Brothers Stockyard.

Care must be given to preserve any property pins not directly in conflict with the construction. It shall be the contractor's responsibility to reset any property pins disturbed during construction.

The quantities listed on the Bid Sheet are estimates, and should be treated as such. Bid prices will remain the same even if actual quantities are as much as 200% greater than the estimated quantities. Renegotiation of bid prices will not occur unless actual quantities are more than 200% greater than estimated quantities. The town reserves the right to alter quantities to allow the project to stay within the budget allotted.

As construction moves through the Wilson Brothers stockyard, the contractor will replace all fencing taken down during construction at the end of the day. All fencing that is damaged during construction will be replaced by the contractor at his cost Restoration to the yard will occur promptly after the pipe is laid and backfilled, so that Wilson Brothers employees may continue to work in the yard. No more than sixty (60) feet of trench may be opened at a time when the contractor is laying pipe in the Wilson Brothers stockyard.

The contractor will allow access to all businesses during all hours of construction. At least one paved entrance will be kept open to the Pimpernel property at all times. When demolishing and filling the Pimpernel Pump Basin, the lateral must be tied into the sewer system first, so that sewer service is maintained to the property during the demolition and filling.

END OF SECTION

SECTION 010

DEFINITIONS

1. **Contract Time Limit** - The calendar date specified for completion of the work described in the contract, including authorized extensions.

2. **Contractor** - Any individual, partnership, corporation, or joint venture that contracts with the Town to perform work.

3. **Engineer** - Either the Director Public Works or Director Public Utilities for the Town of Warrenton.

4. **Inspector** - The Engineer's authorized representative who is assigned to make detailed inspections of the quality and quantity of the work and its conformance to the provisions of the contract.

5. **PFM** - The current edition of the Town's Public Facilities Manual (PFM) with all revisions to date of project advertisement.

6. **Town** - Town of Warrenton

END OF SECTION

SECTION 050

SUMMARY OF WORK

PART 1 GENERAL

1.01 WORK UNDER THIS CONTRACT

A. The work covered under this contract comprises the furnishing of all labor, materials, equipment, tools and services and the installation and construction of all items, and the performance of all work necessary to complete the work shown or called for on the Drawings and/or specified in these Specifications.

B. The Work in this Contract shall consist of all excavation, backfill, pipe/box culvert installation, grading, restoration and erosion control items shown on the plans and specified in these specifications.

C. Town of Warrenton shall supply the Contractor with six (6) sets of approved plans and specifications and copies of approved Town standard specifications.

PART 2 PRODUCTS

All products incorporated into the work area to be new, unused, and first quality unless otherwise specifically noted.

PART 3 EXECUTION

A. All work is to be performed in a workmanlike manner by properly trained and qualified personnel under supervision of the contractor's representative.

B. All roadway work shall be performed in accordance with the latest copy of the Virginia Department of Transportation Road and Bridge Specifications and Standard Details.

C. Contractor shall coordinate excavation of borrow material with owner or owners representative.

END OF SECTION

SECTION 100

CONTRACT COMPLETION

PART 1 GENERAL

1.01 The period of performance is for seventy-five (75) calendar days from contract award. The Notice to Proceed will not be given until the Engineer feels the Contractor is prepared to begin construction. If the project is not completed within the time frame, two hundred fifty ($250) per day in liquidated damages will be assessed for each calendar day exceeded.

END OF SECTION

SECTION 101

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.01 REGULATORY COMPLIANCE

It is consistent with the intent of these Specifications to describe those performance standards, often broad and general in nature, required to provide a complete and operating system. It shall be the responsibility of the Contractor to familiarize himself fully regarding the detailed needs and requirements of any and all regulatory agencies having jurisdiction over this work. These detailed needs and requirements should be accommodated, as part of the Work, in every manner just as if they were prescribed in these Contract Documents.

1.02 REQUIREMENTS INCLUDED

Provide required personnel, equipment, and materials, to construct project according to applicable codes.

1.03 APPLICATION CODES AND STANDARDS

As a minimum standard of quality and workmanship, construction is to comply with the latest edition of the following codes and standards insofar as they are applicable:

1. Department of Health, Commonwealth of Virginia, "Waterworks Regulations", and Sewerage Regulations.
2. Virginia Erosion and Sediment Control Handbook.
3. Virginia Department of Transportation, "Road and Bridge Specifications."
4. American Water Works Association Standards.
5. American Concrete Institute Standards (ACI).
6. American Society for Testing Materials (ASTM).
7. American Welding Society (AWS).
8. National Electric Code (NEC).
9. Underwriter's Laboratories (UL).
10. Town of Warrenton, Public Facilities Manual.
11. Virginia Occupational Safety and Health Administration (VOSHA).

The above codes and standards are hereinafter referred to as "Reference Specifications."

END OF SECTION

SECTION 102

LINES AND GRADES

PART 1 GENERAL

A. All elevations indicated or specified refer to USGS datum. Control benchmarks are at the elevation and in the location as shown on the Plans.

B. The Engineer will establish base lines, control points, and benchmarks, and will establish other pertinent monuments at the site of the work. From these established lines and bench marks, the Contractor shall run all lines and levels, furnish, set and drive grade stakes, and do all other work necessary to lay out his work in accordance with the dimensions and elevations shown on the Plans.

C. The Contractor shall employ properly qualified personnel to perform the work herein described. The Contractor shall also furnish and set all template and batter boards necessary. The Contractor will be held responsible for the preservation of all stakes and marks established by the Engineer, and if any of the stakes and marks are carelessly or willfully disturbed, the cost of replacing them shall be charged against the Contractor.

END OF SECTION

SECTION 103

APPLICATION FOR PAYMENT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Contractor shall submit Applications for Payment to Owner by the first day of the month. Applications will be made on standard forms provided by the Owner, which shall be the bid form unless otherwise specified. All applications must show complete schedule of values and percentage of work completed to date. Applications for Payment will not be processed without the following:

A. Supporting data for percent completion; i.e. all submittals and reports up to date.

B. Establishment and maintenance of erosion and sediment control measures in accordance with these specifications.

Retainage will be 5% of gross amount due until Final Completion unless otherwise specified in the Agreement.

In the event the contractor falls behind in work performance by more than 10%, the retainage shall be increased to 50% of the gross amount due.

Actual work progress shall be measured based on the dollar amount of work complete divided by the daily dollar value for the job. This figure shall be compared to the actual number of calendar days used.

END OF SECTION

SECTION 104

CHANGE ORDER PROCEDURES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

Promptly implement change order procedures. Provide full written data required to evaluate changes to Engineer and Owner. Any claim or change order submitted by the contractor shall be subject to the pre-notification requirements in Section 105.16 of the VDOT Road and Bridge Specifications, except the "Town" shall be in lieu of the Department and the Town Manager will act in place of the Commissioner.

1.02 RELATED REQUIREMENTS

A. Agreement

B. General Conditions

C. Section 103; Application for Payment

D. Section 107; Construction Schedule

E. Section 110; Definition of Payment Items

1.03 PRELIMINARY PROCEDURES

A. Owner or Engineer may initiate changes by submitting a Proposal Request to Contractor. Request will include:

1. Detailed description of the Change, Products, and location of the Change in the Project.

2. Supplementary or revised Drawings and Specifications.

3. The projected time span for making the change.

4. A specific period of time during which the requested price will be considered valid.

5. Such request is for information only, and is not an instruction to execute the changes, nor to stop work in progress.

B. Contractor may initiate changes by submitting a written notice to Engineer, containing:

1. Description of the proposed changes.

2. Statement of the reason for making the changes.

3. Statement of the effect on the Contract Sum and the Contract Time.

4. Statement of the effect on the Work of separate Contractors.

5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

1.04 CONSTRUCTION CHANGE AUTHORIZATION

A. In lieu of Proposal Request, Engineer may issue a Construction Change Authorization for Contractor to precede with a change for subsequent inclusion in a Change Order.

B. Authorization will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change, and will designate the method of determining any change in the Contract Sum and any change in Contract Time.

C. Owner and Engineer will sign and date the Construction Change Authorization as authorization for the contractor to proceed with the changes.

D. Contractor may sign and date the Construction Change Authorization to indicate agreement with the terms therein.

1.05 DOCUMENTATION OF PROPOSALS AND CLAIMS

A. Support each quotation for a lump-sum proposal, and for each unit price that has not previously been established, with sufficient substantiating data to allow Engineer to evaluate the quotation.

B. On request, provide additional data to support time and cost computation:

1. Labor required

2. Equipment required

3. Products required

(a) Recommended source of purchase and unit cost.

(b) Quantities required.

4. Taxes, insurance, and bonds.

5. Credit for work deleted from Contract, similarly documented.

6. Overhead and profit.

7. Justification for any change in Contract Time.

1.06 PREPARATION OF CHANGE ORDERS

A. Engineer will prepare each Change Order.

B. Form: Change Order

C. Change Order will describe changes in the Work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.

D. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.07 LUMP-SUM/FIXED PRICE CHANGE ORDER

A. Content of Change Orders will be based on, either:

1. Engineer's Proposal Request and Contractor's responsive proposal as mutually agreed between Owner and Contractor.

2. Contractor's proposal for a change, as recommended by Engineer.

B. Owner and Engineer will sign and date the Change Order as authorization for the Contractor to proceed with the changes.

C. Contractor will sign and date the Change Order to indicate agreement with the terms therein.

1.08 CORRELATION WITH CONTRACTOR'S SUBMITTALS

A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.

B. Periodically revise the Construction Schedule to reflect each change in Contract Time.

1. Revise sub-schedules to show changes for other items of work affected by the changes.

C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

END OF SECTION

SECTION 105

PRECONSTRUCTION CONFERENCE

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Contractor's representative shall attend the Pre-Construction Conference and present the following information for acceptance by the Owner and Engineer:

1. Construction Schedules

B. Conference will be held at the Town's Public Works Facility after the agreement has been executed, but before the Notice to Proceed is issued.

1.02 RELATED REQUIREMENTS

A. Section 107; Construction Schedules

B. Section 110; Definition of Payment Items

END OF SECTION

SECTION 106

PROGRESS MEETINGS

PART 1 GENERAL

As a general rule, progress meetings will not be held. If, however, progress is not made as scheduled or if Owner or Engineer desires to discuss revised progress schedules or quality of workmanship or other aspects of concern, a progress meeting may be called. Contractor will be required to submit weekly written schedules outlining activities for the upcoming week on Friday of each week. Weekly schedules are to be submitted to the Project Inspector.

END OF SECTION

SECTION 107

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Prior to the issuance of the Notice to Proceed, Contractor shall submit to Owner and Engineer a proposed construction schedule that will conform to contract completion time frames.

B. Construction schedule shall be in a form which will clearly show the proposed degree of completeness of each aspect of the construction throughout the life of the contract. Bar graphs and/or PERT diagrams are acceptable forms.

C. Owner and Engineer will review schedule. Final construction schedule may be revised and accepted by all parties during the Pre-Construction Conference.

1.02 RELATED REQUIREMENTS

A. Section 105; Pre-Construction Conference

B. Section 106; Progress Meetings

END OF SECTION

SECTION 108

SHOP DRAWINGS, PRODUCT DATA

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Contractor shall submit for the approval of the Engineer, prior to start of construction, details or shop drawings, and manufacturer's specifications of all materials and equipment he intends to furnish under this Contract.

B. Equipment shall not be fabricated until shop drawings have been approved.

C. All shop drawings shall be checked, stamped, signed, and dated by the Contractor before submission to the Engineer. Accompany with certificate, signed by Supplier and Contractor, stating that products comply with the requirements of these Specifications.

D. Contractor shall submit two (2) copies more than the number that he wishes to have returned from Engineer.

E. Engineer's approval of Contractor's shop drawings will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract, nor shall it relieve him of the responsibility for any error that may exist. Where such errors or omissions are discovered later, they shall be made good by the Contractor irrespective of any approval by the Engineer.

END OF SECTION

SECTION 109

RELEASES

PART 1 GENERAL

For work on Right(s)-of-way and in temporary and permanent easements, the contractor shall furnish a release from governing authority or property owner prior to completion and final payment.

END OF SECTION

SECTION 110

DEFINITION OF PAYMENT ITEMS

PART 1 GENERAL

1.01 THE DEFINITIONS OF ITEMS AND BASIS OF PAYMENT ARE AS FOLLOWS:

1. Mobilization

Lump Sum price for moving personnel, equipment, and materials to site. Price to include performing necessary stake out, and cut sheets on project, etc. Price includes resetting any disturbed property pins by a registered land surveyor. Price to include any temporary traffic control and signage.

2. Site Clearing, Demolition, & Preparation

Lump sum price for clearing, grubbing, tree removal/trimming, temporary relocation of fences and any private property and demolition as required. Price also includes any test pits or saw cutting necessary.

3. Temporary Silt Fencing

Price per linear foot to install and maintain silt fence throughout construction including all necessary measures to control project related erosion and sediment runoff in conformance with the plans and Section 117 of these specifications. Price includes all materials, equipment, and labor necessary.

4. SDR-35 Sanitary Sewer Pipe*

Price per linear foot for the installation of SDR-35 sanitary sewer pipe including all accessories to the specified depth as per the plans. Price per linear foot includes all clearing, grubbing, excavation, backfill, testing, and **any specified bedding**. Price to include cutting and removal of pavement or concrete, safety devices, sheeting and shoring used by the contractor and removal and disposal of excess material. This item also includes all restoration along the route of the proposed sewer line, including but not limited to, repair of road shoulders, repairs to gravel parking lots and restoration of mailboxes and private property. Pipe is measured from outside of manhole to outside of manhole (does not include any piping inside a manhole)**.** Price to include all necessary traffic controls devices including signage. Price to include any temporary traffic control and signage. Price includes all materials, labor, and equipment

***Note: Unit prices are separated into 0'-8' deep sections, 8' – 12' deep sections, 12' –20' deep sections, and >20' deep sections. Depth measured from existing gradeline to invert of pipe from the profile on the plans.**

5. Sanitary Sewer Structures (Standard 4' Diameter Manhole)*

Price per each for standard 4' diameter precast concrete manholes with base, frame, and lid. Price includes all accessories, excavation, bedding, backfill, and restoration for placement of manholes. Price to include any temporary traffic control and signage. Price includes all materials, equipment, and labor.

***Note: Unit prices are separated into 0'-8' deep manholes, 8'-12' deep manholes, 12'-20' deep manholes and > 20' deep manholes. Depth measured from existing gradeline to invert out from the profile on the plans.**

6. Inside Drop Manhole

Price per each for manhole drop furnished and installed in manhole. Includes all drop manhole components, accessories, and fasteners. Tee to be placed at invert in so that access is possible to incoming pipe and unused stub is capped. Cap to be tethered with nylon cable to prevent loss. Drop pipe to be strapped to side of manhole at 36" intervals maximum. Pipe to have two 45-degree bends into the invert of the manhole. Inside drop manhole shall be installed as per the Town Public Facilities Manual. Price to include any temporary traffic control and signage. Price includes all materials, labor, and equipment.

7. Stubouts

Price per each for sanitary sewer stubout Price to include all accessories, connections, excavation, bedding, backfill, and restoration. Price includes installation of cleanout at grade line on the Town's side of the property line. Stub outs to be brought to grade and capped. Stub-outs to be placed as per plans and the Engineer. Price to include any temporary traffic control and signage. Price includes all materials, labor, and equipment.

8. Fill Existing Pump Basin

Lump Sum Price to crush and fill existing 42" diameter sewer pump basin with appropriate material. The pump basin is located in front of the Pimpernel building on property PIN #6893-67-5309-000. The connections to the well will be plugged, the pumps removed, the basin pumped dry, the walls knocked in, and the hole filled with appropriate material. Price includes disconnecting the existing sewer lateral from the pump basin and extending it to the main line with a clean out placed at the easement line. Sewer lateral to main line distance is estimated at twenty feet. Price includes locating the existing laterals and tie in. Price to include all accessories, connections, excavation, bedding, backfill, and restoration. The ornamental Maple tree near the basin is not to be damaged, however it may be moved to a location on the property as decided by the Engineer. Price includes all materials, labor, and equipment.

9. Asphalt Pavement Restoration*

Price per square yard for the restoration of pavement for Class "A" restoration as specified in Section 121. Price includes all equipment, labor, and materials. Price to include sub-base preparation, 8" of 21A Select Backfill, 2 ½" BM-25.0 base course bituminous concrete, and 1 ½ " SM-9.5A top course bituminous concrete. Price to include any temporary traffic control and signage. Price to include all materials, labor, and equipment.

***- Payment for trenches, MH structures, or pipeline excavations and associated pavement restorations/repairs shall be limited to a maximum of the diameter of the pipe or structure plus 3 feet, regardless of the depth of the trench.**

10. Fine Grading, Seeding and Mulching, Restoration

Lump sum price for restoration, placing of suitable fill material, fine grading, seeding and mulching of all areas disturbed and not to receive pavement. Restoration includes the replacement of fencing that was removed and replaced with new posts and fabric/fencing material. Price to include any temporary traffic control and signage. Price includes all materials and labor for establishment and maintenance of grass areas per specification.

Seeding shall conform with the following:

A. Lime	2 ton/acre
B. Fertilizer (15-30-15)	0.5 ton/acre
C. Seed	90 lb/acre

Price for restoration to include parking lots, entrances, and travel ways. Price to include all materials, labor, and equipment to install 8" of select backfill 21A and 2" of asphalt as per the existing asphalt parking lot or placement and grading of Select Backfill 21A for gravel parking lots. Price to include any grading and surface preparation necessary to insure a smooth transition across the restored area. Restoration area to include gravel stockyard for Wilson Brothers and is to occur immediately after pipe is laid and trench is backfilled. Price to include any temporary traffic control and signage. Price to include all materials labor, and equipment.

11. Concrete Encasement

Price per linear foot for Class 1 concrete encasement of the sanitary sewer line in areas where it passes nearby water or storm sewer lines. Price to include all excavation, backfill, formwork, and placement of concrete. The encasement is to be placed as per Town PFM and extend three feet on either side of the utility line crossing. Price to include any temporary traffic controls and signage. Price to include all materials, labor, and equipment.

12. Additional Costs for C-900 PVC Sanitary Sewer Pipe

Additional price per linear foot for the installation of C900 sanitary sewer pipe instead of SDR-35. This additional price will be added to the SDR-35 price. This option will only be exercised in sections of pipe that are 15 feet deep or greater. It is anticipated that C-900 is only required for the two sections between Manhole 7 and Manhole 10 and Manhole 10 and Manhole 11.

13. Relocation of Water Lines

Price per linear foot of relocating water main and services. Price to include all fittings, tees, crosses, bends, and accessories. Price to include all clearing, grubbing, excavation, backfill, testing, sterilization, required blocking and any specified bedding. Price includes all connections to existing lines, sheeting, shoring, safety devices, and disposal of excess materials. Price includes all materials, labor, and equipment.

14. Relocation of Storm Sewer Lines

Price per linear foot of storm sewer line relocation. Price to include all excavation, backfill, shoring, safety devices, connections, and replacement of any damaged pipe. Price to include any temporary traffic control and signage. Price includes all materials, labor, and equipment.

15. Undecut

Price per cubic yard for removing undercut and installing and compacting Select Backfill 21A stone. Price includes excavation of unsuitable material, disposal of unsuitable material, and replacement with compacted select backfill 21A. Quantity is measured as cubic yards of material removed. Material is to be used for undercut locations only, and the Engineer must be contacted before material is placed. Price includes all materials, labor, and equipment necessary.

16. Rock Excavation*

Price per cubic yard for the excavation and disposal of rock, per plans or during construction. Rock is

considered to be all material that cannot be removed with a backhoe, for example material that is removed with the use of Hoe Ram or Blasting. Quantity to be measured in the ground by the contractor and the Town Inspector total to be agreed upon by both parties at the end of each day. Price includes all materials, labor, and equipment required.

*** Note: All blasting shall conform to VDOT Specifications 107.11 and 303.04, The Public Facilities Manual, and The 1996 BOCA National Fire Prevention Code Chapter 30.**

END OF SECTION

SECTION 111

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 PROTECTION AND SAFETY

A. Protect bench marks and existing structures, property corners, roads, and paving against damage from equipment and vehicular or foot traffic.

B. Cease operations and notify Engineer immediately if safety of adjacent structure(s) appears to be endangered. Do not resume operations until safety is restored.

C. Prevent movement, settlement or collapse of adjacent services, structures, trees, and etc. Assume liability for such movement, settlement, or collapse. Promptly repair damage at no cost to the owner.

D. Provide, erect and maintain barricades, lighting and/or guardrails as required to protect the general public, workers, and adjoining property.

E. Protect excavations by shoring, bracing, sheet piling, underpinning, or other methods, as required to prevent cave-ins or loose dirt from falling into excavations.

F. Notify Engineer of unexpected sub-surface conditions and discontinue work in area until Engineer provides notification to resume work.

G. Protect bottom of excavations and soil around and beneath foundations from frost.

H. Insure all required environmental protection devices and procedures are in place, properly maintained, and operational.

END OF SECTION

SECTION 112

TRAFFIC REGULATION

PART 1 GENERAL

A. Prior to issuance of Notice to Proceed, the Contractor shall submit to the Engineer a proposed Traffic Control Plan to facilitate the installation of the gravity sanitary sewer storm pipe along Industrial Road.

B. Do not close or obstruct roadways without prior permission/coordination.

C. **One lane of Industrial Road must be left open at all times during the installation of the gravity sanitary sewer line. Access to the businesses and the Town's Pump Station must be maintained at all times.**

D. **Work shall be performed in compliance with the current version of the Virginia Work Area Protection Manual.**

E. Access to the local residents' property must be maintained at all times.

F. Conduct operations with minimum interference to public roadways.

G. Maintain designated temporary roadways and detours for vehicular traffic.

H. At the end of each workday, streets must be reopened to traffic. No trenches in the roadway will be left open overnight.

END OF SECTION

SECTION 113

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Procedures:

1. Upon suspected completion of project, submit to Engineer Application for Final Payment.

2. Final Inspection meeting will be held at the site to determine completeness.

3. A final "punch list" of items to be completed will be prepared by Owner, Engineer, and Contractor at this meeting.

4. Complete items on punch list and notify Engineer of completeness.

5. Owner's payment of final application shall terminate the Contract except as provided for bonds and warranties for the guarantee period.

END OF SECTION

SECTION 114

CLEANING

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Clean premises daily, at the minimum, of accumulated construction debris. All streets including the surrounding side streets must be kept clean of mud and trackings from vehicles. Loose gravel and dust must be removed from the street.

B. Prior to final completion, thoroughly remove from premises any debris remaining from construction activities, and properly dispose. Leave premises in a clean, neat, orderly and safe condition.

END OF SECTION

SECTION 115

PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Provide personnel to:
   1) Keep a set of Contract Drawings on the job site at all times.
   2) Revise drawings to show actual location and details of the finished work.
   3) Show locations and details of utilities uncovered by work.

B. Provide a set of "as built drawings" at job completion.

C. Submit Record Documents to Engineer at or before the final inspection meeting.

END OF SECTION

SECTION 116

SITEWORK PROCEDURES

PART 1 GENERAL

1.01 DESCRIPTION

General instructions for sitework.

1.02 SCOPE

Sitework shall include site preparation, earthwork, site improvements, and paving/surfacing.

1.03 QUALITY ASSURANCE

A. Prior to beginning work, become thoroughly familiar with site conditions and all sections of the Division.

B. Thoroughly coordinate all sections of this Division.

C. Comply with all pertinent codes and regulations.

D. Perform all required tests in accordance with section requirements.

1.04 SUBMITTALS

A. Shop drawings, product data.

B. Releases.

C. Disinfection and bacteriological reports.

D. Pressure test logs.

E. Project Record Documents.

F. Operating and maintenance data.

1.05 PERMITS

Obtain required permits from appropriate authorities before sitework begins.

1.06 DUST CONTROL

A. Use all means necessary to control dust on and near the Work, and on and near all off-site borrow areas, if such dust is caused by the Contractor's operations during performance of the work, or if resulting from the conditions in which the contractor leaves the site.

B. Thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other work on the site.

1.07 MAINTAINING TRAFFIC

A. Do not close or obstruct roadways without permits.

B. Conduct operations with minimum interference to public or private roadways.

C. Maintain designated temporary roadways, and detours for vehicular traffic.

PART 2 PRODUCTS

In accordance with the provisions of the following sections.

PART 3 EXECUTION

3.01 SITE INSPECTION

Prior to all work of this division, carefully inspect the entire site and all objects designated to be removed and to be preserved.

3.02 CLARIFICATION

The drawings do not propose to show all objects existing on the site. Before commencing any work in this Division, verify with the Engineer all objects not clearly identified to be removed or to be preserved and any discrepancies not fully resolved.

3.03 PRIOR CONDITIONS INSPECTIONS

A. Prior to all work of this division, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where installation may commence in accordance with the original design, all pertinent codes and regulations, and all applicable portions of the reference standards.

B. In the event of discrepancy, immediately notify the Engineer and do not proceed with installation in non-conforming areas until all identified discrepancies have been fully resolved.

3.04 PROTECTION AND SAFETY

Verify all required protection devices are in place and operational.

3.05 PREPARATION AND LAYOUT

A. Establish extent of sitework by area and elevations; designate and identify datum elevation.

B. Set required lines and levels.

C. Maintain bench marks, monuments and other reference points.

3.06 PROCEDURE

Provide sitework in accordance with lines and levels required for construction of the Work, including space for forms, bracing and shoring, foundation drainage systems, applying damp-proofing and waterproofing, and to permit inspection.

3.07 EXCESS WATER CONTROL

A. Do not place, spread, or roll fill material during unfavorable weather conditions. Do not resume operations until moisture content and fill density are satisfactory.

B. Provide berms or channels to prevent run-off into subgrade; promptly remove all water collecting in depressions.

C. Provide and maintain at all times during construction, ample means and devises with which to promptly remove and dispose of all water from every source entering the excavations. Dewater by means, which will ensure dry excavations and the preservation of the final lines and grades of bottoms of excavations.

3.08 SURPLUS MATERIALS

A. Remove surplus backfill materials from site, or as otherwise directed by Owner.

B. Leave stockpile areas completely free of all excess fill materials.

3.09 REMOVAL OF DEBRIS

A. Promptly remove cleared and construction debris from site.

B. Obtain permission, as required, from applicable regulatory authority for disposal of debris at waste disposal site.

C. Remove surplus equipment and tools from the site.

END OF SECTION

SECTION 117

EROSION AND SEDIMENT CONTROL

PART 1 GENERAL

1.01 SCOPE

Permanent vegetation, temporary vegetation, mulching, and conservation structures.

1.02 RELATED REQUIREMENTS

A. Section 116; Sitework Procedures

B. Virginia Erosion and Sediment Control Handbook, Latest Edition

C. Town of Warrenton Erosion & Sediment Control Ordinance.

PART 2 PRODUCTS

In accordance with the Virginia Erosion and Sediment Control Handbook and as selected by the Contractor, subject to the approval of the Engineer.

PART 3 EXECUTION

3.01 GENERAL

A. Comply with the "Virginia Erosion and Sediment Control Handbook" by the Virginia Soil and Water Conservation Commission to prevent sediment from entering storm sewers and drainageways.

B. All applicable erosion and siltation control measures shall be taken prior to grading.

C. No more than 60 feet of trench shall be open at any one time unless prior coordinated/approved.

D. Any disturbed area, not paved, sodded or built upon by November 15 is to be seeded on that date with oats, Abruzzi rye, or equivalent and mulched with hay or straw.

E. Synthetic filter fabric fencing shall be used for sediment control when the water line or land disturbing activities are within 25 feet of a live creek or stream.

F. No excavated material shall be placed in streambeds.

G. Inspect all erosion and sediment control devices at the close of each work day and after each rain storm. Make any necessary repairs or cleanup to maintain the effectiveness of the device immediately.

H. Protect graded areas from the action of the elements. Settlement or other damage that occurs prior to acceptance of the work shall be repaired and grades satisfactorily reestablished.

I. Upon completion of construction work and after spoil and debris have been removed, regrade any areas disturbed by operations.

J. No disturbed area will be denuded for more than 30 calendar days after the completion of grading. Those areas which are used for access to or from the actual construction site may remain in a denuded form so long as erosion control is properly provided to insure that there is no erosion run-off which could traverse across or out of the existing easement, which is provided to the Contractor.

K. All disturbed areas not in the streets and not used for access to or from the continuing job are to be mulched and seeded within 7 days after backfill. For those areas which are used for access, the mulch and seeding will be required 30 days after the completion of the job or use of that area for access by the Contractor.

3.03 MULCHING

When final grading has not been completed, apply mulch asphalt emulsion, jute matting or similar materials for temporary protection. Areas brought to final grade during an off-season may be mulched immediately and overseeded at the proper season with permanent grass land legume species. Properly anchor mulch to prevent dislodging.

3.04 TEMPORARY SEDIMENT BARRIER(S)

Provide a silt fence barrier across, or at the toe of, a slope to intercept and detain sediment. See drawings for location.

3.05 OTHER APPROVED MEASURES

Provide all other materials required by governing regulations.

3.06 MAINTENANCE

Maintenance shall be as indicated on plans.

3.07 REMOVAL

Remove all control measures at the completion of the Work and restore site as required by this Division.

END OF SECTION

SECTION 118

GRADING, EXCAVATION, AND COMPACTION

PART 1 GENERAL

1.01 SCOPE

The work covered under this Section consists of furnishing all labor, equipment, and materials necessary to complete the grading and excavation called for on the plans. This includes all excavation, backfilling, and compaction required by the Contract Documents.

1.02 RELATED REQUIREMENTS

A. Virginia Department of Transportation, "Road and Bridge Specifications"

B. Virginia Erosion and Sediment Control Handbook

C. American Society for Testing Materials (ASTM)

D. Section 116; Sitework Procedures

E. Section 117; Erosion and Sediment Control

F. Section 119; Trenching, Backfilling and Compaction

PART 2 EXECUTION

2.01 EXCAVATION

A. Excavate to elevations and dimensions shown on the drawings.

B. Remove all topsoil and stockpile on site in locations indicated on drawings. All other excess material to be used in the future for engineered fill shall be stockpiled in areas shown on drawings.

C. Bidders shall base their Bids on Unclassified Excavation to the lines and levels shown on the Drawings.

2.02 SHORING

A. Provide all necessary shoring, bracing, etc., as required to maintain excavations and to prevent cave-in of excavations back of all retaining walls and sufficient to resist the pressure.

2.03 FILL MATERIAL

A. Where engineered fill is specifically called for on the Drawings, fill material shall be fine grained cohesive material of low permeability. Material shall contain no rock fragments exceeding 3" in maximum dimension, shall be well graded, and shall conform generally to the following:

Passing 2" sieve.....95% minimum
Passing #200 sieve.....75% maximum

B. Before fill material is used, it shall be tested by an Independent Testing Laboratory for conformity with these requirements and for suitability for compaction. All tests shall be paid for by the Contractor. If suitable fill material is not available at the Project Site, it shall be furnished by this Contractor. All fill material shall be of similar composition.

C. All other fill material shall be well compacted earth, free of debris of all kinds.

2.04 FILLING AND BACKFILLING

A. Remove debris from excavations before backfilling. Fill shall not be placed in water or on muddy or frozen ground.

B. Engineered fill material specified above shall be installed in layers having a loose thickness of approximately 8". Layers shall be placed covering the entire area until the specified top elevation of the fill has been reached. After placing of each layer, the fill material shall be compacted to a density of not less than 95% modified proctor in accordance with ASTM D1557. The compaction of the material shall be accomplished by means of a vibratory roller, or sheepsfoot roller depending on material used. Where vibratory roller is used, no less than two passes in each direction shall be made with the vibratory roller over the entire area of each layer. Additional passes shall be made if the specified degree of compaction, as established by tests, has not been obtained.

C. The degree of compaction obtained shall be verified by means of field density tests made by an Independent Laboratory, and paid for by the Contractor. Where tests indicate a deficiency in degree of compaction, the Contractor shall correct such conditions and the Testing Laboratory shall make additional test in order to verify that the corrected work has been satisfactory. The Testing Laboratory shall provide four (4) certified copies of all test reports.

D. All other fill and backfill material shall be placed in layers not exceeding 8", and each layer shall be thoroughly compacted with mechanical rollers or other approved mechanical devices. Compact fill and backfill in areas inaccessible to rollers with mechanical tampers. All slopes shall be compacted:

1. Ten feet around buildings, within buildings, and within parking areas and drives shall be compacted to a density of not less than 95%.

2. Planting and lawn areas shall be compacted to a density of not less than 85%.

2.05 GRADING

A. New finish grades are shown on the Drawings. All areas where earth is disturbed by grading and construction operations under this Contract, except where paving and drives are to be constructed, shall be properly graded for seeding. The extent of grading for paving, walks, and drives shall be as shown on the Drawings.

B. Uniformly spread and rake topsoil to the levels indicated on the Drawings and to an even smooth surface ready for Seeding. Grades not otherwise indicated shall be of uniform levels or slopes between points where elevations are given. Grading around the building shall be sloped to drain away from the building in all instances.

2.06 EROSION AND SEDIMENT CONTROL

All work shall be performed in accordance with the applicable requirements of the Virginia Erosion and Sediment Control Handbook, as shown on the Drawings and required by the Town during construction.

END OF SECTION

SECTION 119

TRENCHING, BACKFILLING, AND COMPACTING

PART 1 GENERAL

The Work covered under this Section consists of furnishing all labor, equipment, and materials necessary to complete all excavation, backfilling, and compacting to trenches for pipelines and associated structures as required for work covered by these specifications.

1.01 RELATED REQUIREMENTS

Section 101; Regulatory Requirements

PART 2 PRODUCTS

INCLUDED IN PART 3

PART 3 EXECUTION

3.01 CLEARING

The sites of work shall be cleared of all trees, shrubs, paving and objectionable material which interfere with prosecution of proposed work. Trees and shrubs which will not interfere with construction shall be protected from damage. Clearing of site will be considered as an incidental item of excavation.

3.02 CLASSIFICATION OF EXCAVATED MATERIALS

All excavated materials shall be unclassified. Prices bid for the various sizes of pipe shall include excavating and backfilling.

3.03 STOCKPILING EXCAVATED MATERIAL

All excavated material shall be stockpiled in a manner that will not endanger the Work and that will prevent obstruction of driveways, gutters, and natural water courses. Hydrants under pressure, valve pit covers, valve boxes, or other utility controls shall be left unobstructed and accessible at all times. Topsoil shall be stockpiled separately to guarantee its replacement at the top of the backfill trench.

3.04 SHEETING AND SHORING

Sheeting and shoring shall be furnished in accordance with the provisions of OSHA and as necessary to construct and protect the excavation, structures of all types, and as necessary for the safety of the employees.

3.05 DEWATERING

Where conditions are such that running or standing water occurs in the trench bottom or the soil in the trench bottom displays a "quick" tendency, the water should be removed by pumps and suitable means such as well points or pervious underdrain bedding until the pipe has been installed and the backfill has been placed to a sufficient height to prevent pipe flotation.

3.06 HIGHWAY RIGHTS-OF-WAY

Work within existing or proposed Town Rights-of-Way shall meet all requirements of the Town's Department of Public Works.

3.07 MATERIAL

A. Select Material:

Backfilling shall normally be done with the earth removed from the trench or excavation, provided that the excavated material is suitable for backfilling. Suitable material for select backfill shall be construed as material that classifies as select material Type I or II according to Section 208 of the VDOT Road and Bridge Specifications. No material other than select backfill shall be used for backfilling until the pipe or other structure has one foot or more cover, unless otherwise specified. Above that, except for the last two feet, small stones not larger than 6 inches in their greatest dimension, will be permitted in an amount not in excess of 20 percent of the volume of backfill material, and such stones shall be well distributed throughout the mass.

B. Unsuitable Material:

Material such as clay mass, frozen materials, cinders, ashes, refuse, and vegetable or organic material shall be construed as unsuitable material for backfill.

C. Approved Granular Material:

Granular material shall be well graded crushed stone meeting the requirements of Gradation 57 or 68 as specified in Section 203 of the VDOT Road and Bridge Specifications.

3.08 EXCAVATION FOR TRENCHES

A. General

All excavation for trenches shall conform to the lines and grades shown on the approved drawings. Excavated material shall be removed and used for backfilling where suitable.

B. Ductile Iron and PVC Pipe

The trench shall be excavated to a level below the established pipe grade in accordance with the requirements for bedding as specified below. Bell holes shall be provided at each joint to permit proper joint assembly and pipe support. Any part of the trench bottom that is excavated below the required level shall be backfilled with approved granular material and compacted to a minimum 95 percent of maximum density as determined by AASHTO T-99.

3.09 TRENCH WIDTH

Trench width at the ground surface may vary with and depend upon depth, type of soils, and position of surface structures. The minimum clear width of the trench, sheeted or unsheeted, measured at the springline of the pipe should be one foot greater than the outside diameter of the pipe. **The maximum clear width of the trench at the top of the pipe should not exceed a width equal to the outside pipe diameter plus three (3) feet.** If the above defined trench width must be exceeded or if the pipe is installed in a compacted embankment, pipe embankment should be compacted to a point of at least 2.5 pipe diameters from the pipe on both sides of the pipe or the trench walls, whichever is less. Excavation at manholes and similar structures shall be sufficient to provide 12 inches in the clear between the outside of the structure and the embankment or sheeting.

3.10 UNSUITABLE SUBGRADE

When an unstable foundation is encountered which will not provide adequate pipe support, additional trench depth shall be excavated to a stable foundation and backfilled with approved granular material.

3.11 BEDDING

Ductile Iron Pipe shall be laid in a flat bottom trench on undisturbed earth. If rock is encountered at the bottom of the trench, bedding shall be a minimum of eight inches approved granular material in accordance with above.

3.12 BACKFILLING TRENCHES

A. General:

All trenches shall be backfilled immediately after the pipes and appurtenances are laid therein, with the exception of pressure pipe, where joints are to remain uncovered until after pressure testing is completed. The equipment used for compaction of backfill shall be subject to approval by the Engineer.

B. Initial Backfill:

Initial backfill shall begin at the bottom of the trench to the centerline of the pipe and shall be placed in 3-inch layers and compacted by hand or by approved mechanical tampers or other approved means. Backfilling material shall be deposited in the trench for its full width on each side of the pipe, fittings, and appurtenances to a level of at least one foot above the crown of the pipe, the trench shall be backfilled by hand in 6-inch layers and thoroughly compacted, using special care to avoid injuring or moving the pipe, or damaging any coatings on the pipe. Initial backfill shall be compacted to a minimum 95 percent of maximum density as determined by AASHTO T-99. No lumps greater than two inches in diameter shall be allowed in initial backfill material.

C. Final Backfill:

1. General:

Backfill for trenches not subjected to vehicular traffic shall be placed in layers no greater than one foot thick and compacted to at least 85 percent maximum density as determined by AASHTO T-99. Topsoil (in grassed areas) shall be deposited in the final layer of backfill to guarantee the areas will be returned to original or better conditions.

2. Roadways:

Backfill in and along roadways shall be placed in layers no greater than six inches and compacted to at least 95 percent maximum density as determined by AASHTO T-99.

3.13 COMPACTION TESTS

The Contractor shall employ a reputable testing laboratory at the Contractor's expense, approved by the Engineer. Compaction tests for sewer and water lines are to be taken as follows in and along roadways: (95%)

A. A minimum of one between each manhole section one foot above the sewer line, or every 100 foot distance between manholes; whichever is the greater number of compaction tests

needed. For water line construction, a minimum of every 100 feet one foot above the water line.

B. A minimum of one compaction test between each manhole section at the final aggregate base 9 inches below the final bituminous surface course finished elevation or every 100 foot distance between manholes; whichever is the greater number of compaction tests needed. For water line construction, a minimum of every 100 feet at the final aggregate base 9 inches below the final bituminous surface course finished elevation.

C. A minimum of one compaction test at final grade area under each manhole base unit.

3.13 RESTORATION

A. Pavement Replacement:

Existing pavement which has been cut, damaged, or removed during construction shall be replaced in accordance with the VDOT Road and Bridge Specifications and highway permit.

B. Finished Grading and Clean Up:

Where possible, the ground surface shall be left rounded and slightly higher than the surrounding ground to allow for future settlement. Finished areas around structures shall be graded smooth and hand raked and shall meet the elevations and contours as shown on the Drawings. All lumber, earth clods or rocks larger than four inches and other undesirable materials shall be removed from the site at the completion of construction. Clean up shall be done as promptly as practicable and shall not be left until the end of the construction period.

C. Keep the area of Work cleaned up at all times and promptly remove all materials and debris not intended for incorporation in the Work. Broom clean the surfaces of all paved areas immediately after backfilling operations.

D. Maintain backfilled trenches from the nuisance of dust, mud or settling during the entire length of the Contract and for a period of one year following Final Acceptance of the Work

E. In the event the Contractor fails to satisfy these requirements to the satisfaction of the Engineer, or otherwise prosecute the Work in a reasonable or proper manner, and after a reasonable period of time has elapsed after notification by the Engineer of unsatisfactory conditions, the Owner reserves the right to employ services to take such corrective action as deemed necessary by the Engineer. The cost incurred in taking corrective actions will be deducted from any monies due the Contractor by the Owner or such other means of collection as may be available to the Owner.

F. Shoulder stone may be required by the Town on a case by case basis. Shoulder stone shall be placed at all driveways (if no paved), and mailboxes. Stone shall be placed for a distance of twenty (20) feet centered on the mailbox.

G. All paved and graveled parking areas and paved roads disturbed during the construction shall be repaired within one (1) week of the installation and backfill of the water lines and/or service line. "Cold patch" will be allowed as a temporary method for the repair of the disturbed pavement. "Cold patch" shall be required at all major intersections and thoroughfares at the end of the working day.

END OF SECTION

SECTION 120

FINISH GRADING

PART 1 GENERAL

1.01 SCOPE

Spreading of topsoil to finish grade.

1.02 RELATED REQUIREMENTS

Section 116; Sitework Procedures

1.03 SUBMITTALS

Certification by a registered Civil Engineer or Certified Land Surveyor that the general grading has been completed and the resulting grade elevations are in substantial conformity with the Plans and Specifications.

PART 2 MATERIALS

Topsoil shall be reasonably free from subsoil, debris and stones larger than 3 inches in diameter. In the event there is insufficient topsoil on site, the contractor may use other types of soil deemed adequate by the Engineer for seed germination.

PART 3 EXECUTION

3.01 FINISH

The surface of the topsoil shall be even and free from irregularities and have proper drainage.

3.02 EXCESS

Excess topsoil shall be removed from the site or stored on site as directed by Owner.

END OF SECTION

SECTION 121

PAVEMENT RESTORATION

PART 1 GENERAL

The work covered under this section consists of furnishing all labor, equipment, and materials necessary to perform all required paving and pavement patching required by the Contract Documents.

1.01 RELATED REQUIREMENTS

A. Section 119; Trenching, Backfilling and Compacting

B. Section 122; Street Construction

1.02 REFERENCE SPECIFICATIONS

Reference specifications, where applicable to work under this Section, are referred to by abbreviation as follows:

A. American Association of State Highway & Transportation Official - AASHTO

B. Virginia Department of Transportation - VDOT.

1.03 PERMITS

All work will be in accordance with a Virginia Department of Transportation Highway Construction Permit obtained by the Owner.

PART 2 PRODUCTS

2.01 BASE AGGREGATE:

Base Course Aggregate shall be Type 1, Graded Aggregate Base Material as defined in Section 209, Subbase and Aggregate Base Material, of the VDOT Specifications. Aggregate size shall be 21A.

2.02 CONCRETE

Concrete shall be in accordance with VDOT Road and Bridge Specifications.

2.03 PRIME COAT

Prime Coat shall be Grade RC-250 Bituminous Material as defined in Section 211, Bituminous Material, of the VDOT Specifications. Application rate shall be 0.35 gal/sq. yd.

2.04 TACK COAT

Tack Coat shall be emulsified Asphalt RS-1, meeting requirements of AASHTO —140. Application rate shall be 0.07 gal/sq. yd.

2.05 BITUMINOUS BASE COARSE

Bituminous Base shall be Type BM-25.0 Bituminous Concrete as defined in Section 212, Bituminous Concrete,

of the VDOT Specifications.

2.06 BITUMINOUS SURFACE COARSE

Bituminous Surface shall be Type SM-9.5A Bituminous Concrete as defined in Section 212, Bituminous Concrete, of the VDOT Specifications.

2.07 BITUMINOUS SURFACE TREATMENT

A. Prime Coat. Cut-back asphalt CRS-2 meeting the requirements of AASHTO M81. Application rate shall be 0.35 gal/sq.yd.

B. Prime Coat Cover Aggregate. VDOT No. 78 or No. 8 Stone. Application shall be 30 lbs/sq. yd.

C. Seal Coat. Cut-back Asphalt CRS-2 meeting the requirements of AASHTO M81. Application rate shall be 0.25 gal/sq. yd.

D. Seal Coat Cover Aggregate. VDOT No 78 or No. 8 Stone. Application shall be 25 lbs/sq. yd.

2.08 CRUSHER RUN AGGREGATE

Crusher Run Aggregate shall be VDOT No. 26 as defined in Section 206, Crusher Run Aggregate, of the VDOT Specifications.

2.09 COURSE AGGREGATE

Course Aggregate shall be VDOT No. 1 Stone as defined in Section 203, Course Aggregate, of the VDOT Specifications.

PART 3 EXECUTION

3.01 RESTORATION OF PAVEMENT

A. All existing pavement disturbed by the installation of the work shall be restored as hereinafter specified. Materials and methods of construction shall conform to applicable provisions of the Virginia Department of Highways and Transportation Road and Bridge Specifications. Pavement which shows signs of failure or other defects after completion of restoration shall be removed and replaced by the Contractor at his own expense.

B. When pavement, curb and gutter or sidewalks must be cut, make the cut (saw cut only) in a smooth straight line, parallel to the pipe and 6 inches wider than trench, on each side, to provide an undisturbed shoulder under the new work.

C. Where trenches cross streets, unless specified elsewhere to the contrary, disturb no more than one-half of the street width at one time, and restore the first opening to satisfactory travelable condition before the second half is excavated. Avoid placement of excavated material on existing pavement whenever possible. Clean the pavement by an approved method. Use no cleated equipment on pavements. Alter normal traffic flow only as allowed under VDOT Permit.

D. Do not block private entrances except for short periods, and maintain ingress and egress to

adjacent property.

E. Do not clog street drainage. Maintain shoulders, gutters and ditches affected by trenching operations to carry drainage flows.

F. Prepare subgrade by grading and compacting immediately prior to placing the Aggregate Base Course. The surface shall be true to line and grade and shall be checked with suitable templates or other approved method. Construction methods and equipment shall meet requirements of applicable portions of Section 305, Subgrade and Shoulders, of the VDOT Specifications.

G. Where trenches have been opened in any roadway or street that is part of the State of Virginia highway system, the pavement shall be restored in accordance with the requirements of the Virginia Department of Highways and Transportation, except that in no case shall the paving restoration be less than required for Class "A" Restoration below.

H. Where trenches have been opened in any roadway or street other than those part of the State of Virginia Highway System, the pavement shall be restored by one of the following classes of restoration as directed by the Engineer.

1. Class "A" Restoration: The existing paved surface shall be cut (saw cut only) vertically and horizontally in a smooth straight line to present a neat appearance. The paved surface shall be removed and all saw cut edges shall be tacked with CRS-2 or RC-250 Asphalt Materials or approved equal. The application of the tack shall be under the direction of the Town Engineer or his authorized representative. The trench shall be backfilled as specified and the top 18 inches of the trench shall be filled with 12-inch aggregate base course (compacted to 95 percent by AASHTO Standard T-99) of 21A or approved equal, and 6 inches of BM-25.0 Bituminous base course to bring the level to the top of the existing pavement.

2. Class "B" Restoration: The existing paved surface shall be cut (saw cut only) vertically and horizontally in a smooth straight line to present a neat appearance. The paved surface shall be removed and all saw cut edges shall be tacked with CRS-2 or RC-250 Asphalt Materials or approved equal. The application of the tack shall be under the direction of the Town Engineer or his authorized representative. The trench shall be backfilled as specified and the top 10 inches of the trench shall be filled with 6-inch aggregate base course (compacted to 95 percent by AASHTO Standard T-99) of 21A or approved equal, a 4 inch minimum BM-25.0 Bituminous base course. This paving shall be maintained on grade until the Town Engineer or his authorized representative directs that permanent surface course shall be placed. The permanent surface course shall be a double bituminous surface treatment bonded to match the existing pavement with an 8-inch overlap on each side of the trench edges.

I. Where the surface of the existing pavement of any street, road, or alley is damaged outside the trench area by the Contractor during construction, as determined by the Road Engineer, the Contractor shall restore the damaged pavement (either Class "A" or Class "B" restoration as directed by the Town Engineer) at no cost to the Owner.

3.02 MAINTENANCE OF RESTORED PAVEMENT

The Contractor shall maintain at his own expense all refilled excavations and restored pavement in proper condition until the end of the one-year period following the date of final acceptance of the work. All depressions appearing shall be properly refilled, brought to grade and pavement restored. If the Contractor shall

fail to do so within a reasonable time after the receipt of written notice from the Engineer, the Engineer may refill and restore said depressions and the cost thereof shall be charged to the Contractor. In case of emergency, the Owner may refill and restore any dangerous depressions without giving previous notice to the Contractor and the cost of do doing shall be charged to the Contractor.

3.03 RESTORATION OF PRIVATE ENTRANCES

Restore private entrances to the original condition or provide no less than 4 inches of crusher run stone, whichever condition is better.

3.04 RESTORATION OF CONCRETE CURBS

Restore concrete curbs, gutters, sidewalks, paved ditches and driveways disturbed by construction to the original condition. Restoration shall be done in full sections. Patching or piecing of sections will not be permitted.

3.05 RESTORATION OF BRICK OR COBBLE PAVEMENTS

Brick, cobble or other types of pavement shall be restored to match the existing pavement.

3.06 RESTORATION OF UNPAVED ROADS

All unpaved roads or traveled rights-of way shall be restored with a 12 inch minimum soil aggregate surface course, Gradation "C", properly compacted and bonded.

3.07 PAVEMENT MARKING

Traffic and lane marking will be painted or repainted by the Owner.

3.08 GENERAL

A. Upon completion of construction work and after spoils and debris have been removed. Regrade any areas disturbed by operations.

B. The Contractor shall be responsible for any injury or damage that may result from improper maintenance of any refilled excavations at any time previous to the end of the above-mentioned one-year period.

END OF SECTION

SECTION 122

STREET CONSTRUCTION

PART 1 GENERAL

The work includes providing all clearing and grubbing, excavation and embankment, grading and preparing subgrade, aggregate base course, bituminous base and surface courses, curb and gutter, walks, entrances, seeding, sodding and other incidental work required for roadway construction.

1.01 RELATED REQUIREMENTS

A. Section 119; Trenching, Backfilling and Compacting

B. Section 121; Pavement Restoration

1.02 REFERENCE SPECIFICATIONS

Reference specifications, where applicable to work under this Section, are referred to by abbreviation as follows:

A. American Association of State Highway & Transportation Officials - AASHTO

B. Virginia Department of Transportation - VDOT

1.03 PERMITS

All work will be in accordance with a Virginia Department of Transportation Highway Construction Permit obtained by the Owner.

PART 2 EXECUTION

2.01 MATERIALS AND CONSTRUCTION METHODS

A. All materials and construction shall be in accordance with the Virginia Department of Highways and Transportation, Road and Bridge Specifications and the Virginia Department of Highways and Transportation, Road Designs and Standards except as modified by the Town of Warrenton Standards or the Contract Drawings and Specifications.

B. The right-of-way must be fully cleared, all utilities must be in place, the roadway must be graded to the proposed typical section and all compacting requirements must be met prior to the application of any paving materials.

C. All unpaved areas within the right-of-way limits and/or limits of work shall be top soiled and seeded final acceptance will not occur until a proper growth of grass has been established.

D. Curb cut ramp (handicap ramp) shall be constructed in accordance with Standard CG-12 of the Virginia Department of Highways and Transportation, Road and Bridge Standards.

2.02 INSPECTION AND TESTING

A. Only materials meeting the requirements of these specifications shall be used. They may be

subjected to preparation or use and each of the materials shall be subject to approval by the Engineer at the source of supply or upon delivery, as applicable. Any work in which untested materials are used without approval may be considered as unacceptable and the work may be disapproved by the Engineer.

B. The Contractor shall employ a reputable Testing Laboratory approved by the Owner to perform the tests herein specified and to certify the results of the tests. Samples for testing shall be furnished by the Contractor, at his expense, and will be taken as directed by the testing laboratory, the Owner, or the Engineer.

C. The following Schedule of Tests shall be followed unless modified by the Engineer.

MATERIAL	**TYPE OF TESTS**	**NO. REQUIRED**
Subgrade	AASHTO Maximum Density T-99 Method A Field Density ASTM D2167	1-each type mat'l 1 per 2000 s.y.
Subgrade	California Bearing Ratio (CBR) VTM-8	2 per project
Aggregate Base	AASHTO Maximum Density T-99-Method A Field Density ASTM D2167	1 per job 1 per 2000 s.y.
Bituminous Concrete	AASHTO Maximum Density T-99 Field Density ASTM D2167	1 per job 1 per 2000 s.y.
Portland Cement Concrete	Slump Concrete cylinders	1 each truck as directed

LOCATION	**TYPE OF TEST**	**NO. REQUIRED**
Final grade area under each structure unit	AASHTO Maximum Density T-99 Method A Field Density ASTM D2167	1 per structure minimum
Final grade area under each structure unit	AASHTO Maximum Density T-99 Method A Field Density ASTM D2167	1 per 100 LF minimum
Final grade area under storm culverts	AASHTO Maximum Density T-99 Method A Field Density ASTM D2167	1 per 100 LF minimum

END OF SECTION

SECTION 124

MANHOLES

PART 1 GENERAL

1.01 RELATED REQUIREMENTS

A. Section 102; Lines and Grades

B. Section 108; Shop Drawings, Product Data

A. Section 119; Trenching, Backfilling & Compacting

1.02 QUALITY ASSURANCE

Comply with all applicable codes and regulations as required by regulatory agencies having jurisdiction over this Work. Comply with the pertinent sections of the following standards:

A. ASTM - American Society of Testing and Materials

B. AASHTO - American Association of State Highway and Transportation Officials

C. ACI - American Concrete Institute

1.03 SUBMITTALS

Shop drawings and product data for manholes and cleanouts, and related accessories.

PART 2 PRODUCTS

2.01 MANHOLES

A. General:

Manholes shall be constructed of pre-cast concrete with cast iron frames and covers as shown on the contract drawings. Pre-cast manholes shall conform to ASTM C478. Base sections shall be pre-cast and shall be of the "tub" type that extends above the top of the pipe. Base sections and risers shall be furnished for installation with bell end up.

Pre-cast manholes shall be manufactured by Virginia Pre-cast Corp., Gray Concrete Pipe Co., or approved equal. A flexible, all-weather joint sealant such as M-30, Flex-Tyte Butyl by Delta Pipe Products or approved equal, thickness to be recommended by manufacturer is to be used between all manhole joints, manhole frames and tops of frames. All reinforcing steel shall conform to ASTM C443 or C361. Manholes shall be provided with galvanized iron, rubber-coated steps which shall be constructed in accordance with Standard ST-1 of the Virginia Department of Highways and Transportation, Road and Bridge Standards.

B. Types of Manholes:

Manholes shall be of three types and construction shall be as indicated on the contract drawings. A shallow type manhole shall be constructed at all locations shown where the

depth of the invert of the lowest line to grade does not exceed four feet.

Standard type manholes shall be constructed where invert of lowest line is 4 feet or greater to grade line. Construction shall be as shown on contract drawings.

C. Manhole Frames and Covers:

Manhole frames and covers shall be in accordance with requirements shown on the drawings. They shall conform to the current ASTM A-48, Class 30A, 30B, or 30C and shall be of such quality and composition to make the metal of the casting strong, tough and of even grain. Frames and covers shall be smooth, free from scale, lumps, blisters and sand holes and shall be factory coated with asphalt varnish and shall be constructed in accordance to Drawing S-5 of the Town's PFM. No plugging or filling will be allowed. The word **" SEWER"** shall be cast in the cover so as to be plainly visible. The manhole frames and covers shall be set so that the top of the cover will be flush with the finished grade. Combined weight of manhole frame and cover shall not be less than 400 pounds. Frames and covers shall have the bearing surfaces machine to prevent rocking. Standard Manhole frames and covers shall be Neenah Standard Catalog number R-1401-A, or equal. Watertight manhole frames and covers shall be Neenah standard catalog number R-1755-C, or equal.

D. Invert Channels:

Invert channels shall be smooth and semi-circular in shape, conforming to the inside of the adjacent sewer section. Changes in direction of flow shall be made with a smooth curve of as large a radius as the size of the manhole will permit. The invert channels in cast-in-place bases shall be formed directly in the concrete of the base or shall be built up with brick and mortar or grout. The invert channels in pre-cast bases shall be formed with grout or brick and mortar. Floor of the manhole outside of the channels not less than one foot nor more than two inches per foot.

END OF SECTION

SECTION 130

SANITARY SEWER SPECIFICATIONS

Part 1 Scope of Work

The work includes providing all piping, manholes and other appurtenances required for a complete sanitary sewer system.

1.01 MATERIALS:

A. All type and class of pipe shall be indicated on the project plans.

B. Polyvinyl Chlorine pipe (SDR 35 or schedule 40) for house sewer shall conform to ASTM D 3034 as modified herein. Joints shall be elastomeric gasket joints resulting in watertight seals.

C. Pre-cast concrete manhole sections shall conform to ASTM Specification C478. Joints shall be made with O-ring type rubber gaskets conforming to ASTM Specification C443 or C361.

D. Pre-cast concrete segmental blocks shall conform to ASTM Specification C139. Cement used in the manufacture of the blocks shall conform to ASTM Specification C150, type II. Blocks shall be not less than five inches (5") wide and eight inches (8") long, or proper radius and shaped for sealing and bonding joints with mortar.

E. Mortar shall be one part of portland cement conforming to ASTM Specification C150, Type II, and two (2) parts of said conforming to ASTM Specification C144, with enough water added to produce mortar of the proper consistency for the type of joint. For brickwork, lime may be added to the mortar in the amount of not more than twenty-five percent (25%) of the volume of cement.

F. Grout shall conform to the requirements specified for mortar except that the proportion shall be one part of portland cement and three parts of sand.

G. Cast iron manhole frames and covers and cast iron steps shall conform to ASTM Specification A48, Class 30A, 30B or 30C and shall be factory coated with asphalt varnish.

H. Polyvinyl chloride pipe and fittings four inches (4") through fifteen inches (15") in diameter shall meet the requirements of ASTM D 3034 as modified herein.

1. Pipe with blisters, bubbles, cuts or scrapes on inside or outside surfaces, which appreciably damage the wall thickness, or other imperfections which impair the performance or life of the pipe will be rejected.

2. Joints shall be elastomeric gasket joints resulting in watertight seals.

1.02 FACTORY TESTS:

A. Pipe proposed for use shall be factory-tested in accordance with the requirements of the applicable Specification referenced hereinbefore for the pipe.

B. The Contractor shall furnish sworn statements from the pipe manufacturers that the inspection and tests specified in the referenced standards, including basic tests required by the standard and option tests as specified herein, have been made and that the results of such inspections and tests comply with the requirements of the applicable standard. In addition, actual test results shall be submitted to the Engineer as directed. No pipe shall be considered for use on the project until the manufacturer's

certification, and test results when required, have been approved by the Engineer.

1.03 LAYING PIPE:

A. Pipe shall be laid to a true uniform line and grade from elevations indicated or as directed. Such grades and elevations shall indicate the position of the invert of the pipe. Not less than three (3) batter boards, or their equivalent, shall be maintained between any two (2) manholes at all times during the pipe laying operations. All work shall be done in strict accordance with the recommendations of the manufacturer of the pipe.

B. Pipe laying shall proceed up-grade with the spigot ends pointing in the direction of flow. Each section of pipe shall be laid in such a manner as to form a close concentric joint with the adjoining sections and to prevent sudden offsets in the flow line. Each section of pipe, as it is laid, shall be backfilled sufficiently to hold it firmly in place.

C. As the work progresses, the interior of the sewer shall be cleared of all dirt and superfluous materials of every description. Where cleaning after laying is difficult because of small pipe size, a suitable swab or drag shall be kept in the pipe and pulled forward past each joint immediately after the jointing has been completed.

D. All trenches and other excavations shall be kept free of water during construction and until final inspection. No pipe shall be laid in water, nor shall water be allowed to rise over the pipe joints until the joints are tight. It is not intended by this stipulation that a dry trench will be required, but it is intended that water which might in any way have a harmful effect on the joint shall be excluded from the excavations.

E. At times when work is not in progress, open ends of pipe and fittings shall be securely closed with approved plugs or caps to prevent trench water, earth or other substances from entering the pipes or fittings.

F. All pipe and fittings shall be handled with care at all times to avoid damage. All such materials shall be carefully inspected for defects before being lowered into the trench.

G. All pipe in areas of fill shall not be laid in areas of fill until grading is complete unless the depth of cover is at least 12" below existing ground line for ductile iron pipe and 36" below existing ground line for pipes of other materials.

1.04 JOINTING:

A. General: The Contractor shall obtain the field services of experienced and qualified representatives of the manufacturer whose products are approved for the work to instruct the Contractor's personnel in the proper jointing procedure to be used to secure the best possible joints with the materials selected. The pipe manufacturer shall furnish the contractor and the Engineer a suitable manual covering the recommended procedure for pipe jointing.

B. Joints shall be installed in strict accordance with the recommendations of the pipe manufacturer.

C. Joints between any nonmetallic sewer pipe and cast iron pipe, and between new and existing lines shall provide a tight connection and shall be made with standard adapters or other approved methods.

1.05 CONNECTIONS TO EXISTING MANHOLES:

Pipe connections to existing manholes shall be made by core drill opening in such a manner that the finished work will conform as nearly as practicable to the essential applicable requirements for new manholes, including

all necessary concrete work, cutting, shaping and rechanneling. The connection of the sewer line into the manhole is to be made by a press seal gasket.

1.06 MANHOLES:

Manholes shall conform to Section 302.09 of the Town's PFM.

1.07 TESTING AND LATERAL CONNECTIONS FOR SEWERS

All connections and testing of sewer mains shall conform to applicable sections under Section 302 of the Town's PFM.

END OF SECTION

SECTION 140

WATER MAIN SPECIFICATIONS

PART 1 SCOPE OF WORK:

The work includes providing all piping, fittings, valves, valve boxes, hydrants, anchorage, and all other appurtenances required for a complete water distribution system.

1.01 MATERIALS:

A. All materials shall be suitable for one hundred and fifty pounds per square inch (150 psi) water working pressure unless indicated otherwise.

B. Ductile iron pipe shall conform to AWWA Standard Class 52. Ductile iron fittings shall conform to AWWA Standard C110. Pipe and fitting shall be cement line and shall have mechanical joints or push-on joints conforming to AWWA Standard C111.

C. Class of Pipe: The minimum thickness of ductile iron pipe shall be Class 52 in accordance with AWWA Standard H1 or H3.

D. TECHNICAL SPECIFICATIONS WATER MAIN MATERIALS (PVC-SDR 18-Water Pipe and Etc.)

1. PVC (SDR 18) Pipe shall be Class 150 polyvinyl chloride plastic furnished in twenty-foot (20') nominal lengths. Such pipe shall have a four to one (4 to 1) safety factor at its recommended maximum working pressure. This pipe shall conform to AWWA Specification C.900 for PVC pressure pipe, four inches (4") through twelve inches (12"). Outside diameter shall be compatible with cast iron pipe. Joints shall be the push-on type, such as "Ring Tite" or equal, with rubber rings conforming to ASTM D3139 and ASTM F477.

2. Fittings: All fittings for pipe shall be mechanical joint, ductile iron in compliance with AWWA C.110. When connecting any PVC pipe to a cast iron bell or fitting, the pipe end shall be prepared for installation in accordance with the manufacturer's directions.

3. Lubricant: Lubricant for joints shall be that supplied by the manufacturer of the pipe being used. If PVC pipe is used, the lubricant for PVC pipe shall be used at joints with valves, fittings, hydrants, or other pipe materials. With PVC pipe, no lubricant harmful to polyvinyl chloride plastic shall be used.

E. GATE VALVES: Valves shall be cast iron body, resilient seated with reinforced rubber seat ring or permanently bonded disc, and machined seating surface, brass or bronze non-rising stems, and complying with AWWA C.509. Body shall be self-centering or shall have guides for alignment of wedge disc and have internal epoxy coating approved for potable water. Working pressure shall be at least two hundred pounds per square inch (200 psi) for valves twelve inches (12") in diameter and smaller. Valves shall have "O" ring seals and shall open left (counter clockwise) with a two-inch (2") square wrench nut. Valve ends shall be of mechanical joint type with all bolts, glands, and rubber gaskets furnished in the price of the valve. Valves shall be equal to Mueller or equal gate valves as manufactured by Kennedy or Clow. Valves smaller than four inches (4") shall have screw ends and are to be a gate type valve.

F. VALVE BOXES USED WITH PVC PIPE: Adjustable cast iron valve boxes of suitable diameter, length, and design shall be furnished and installed for all buried valves. Boxes shall be three-piece screw type, with No. 8 or larger round base similar to Buffalo type Mueller No. H-10357 or approved

equal.

G. TIE RODS: Three quarters of an inch (3/4") all thread steel rods for hydrant clamping shall be galvanized or otherwise rustproof treated. Compatible tie bolts and nuts or clamps shall be similarly rustproof treated. Reinforcing steel shall not be accepted.

H. METALLIC MARKING TAPE: Detectable mylar marking tape shall be similar to Lineguard, Inc. utility marking tape, Type II or approved equal. The tape shall bear the printed identification "Caution: Water Line Below." The printing shall be under mylar (reverse printed) so as to be readable through the clear mylar. The tape shall be "Blue" in color and shall be two inches (2") or one and one half inches (1-1/2") in width, supplied in one thousand (1,000') foot rolls. (In addition to the above locating wire maybe required by the Engineer.)

I. Valve boxes shall be cast-iron screw type with adjustable extension pieces, flared base and minimum thickness of three-sixteenths of an inch (3/16"). The word "water" shall be stamped on cover. Boxes shall be Mueller or approved equal. To be used with ductile iron pipe.

J. Fire hydrants shall be dry top, dry barrel, compression type with valve opening of five and one quarter inches (5-1/4") , double O-ring seals and safety flange, stem coupling and sleeve, and shall conform to AWWA Standard C502. Hydrant valve shall close with the water pressure. Hydrants shall have two (2) two and one half inch (2-1/2") hose nozzles and one (1) four and one half inch (4-1/2") pumper nozzle with National Standard threads, six inch (6") mechanical joint inlet connection, National Standard one and one half inch (1-1/2") pentagon operating nut and outlet nozzle cap nuts, chains on outlet nozzle caps, and harnessing lugs. Hydrants shall open to the left (counterclockwise). Hydrants shall be Mueller Co. No. A-423 Centurion or approved equal.

K. Copper pipe shall conform to Federal Specification WW-T-799, Type K, with Wrought copper fittings and BOCA Plumbing Code.

L. Corporation stops and curb stops shall conform to AWWA requirements and shall be suitable for copper service pipe. Stops shall be Mueller or approved equal.

M. SERVICE CONNECTIONS

1. Service Lines shall be three quarter inch (3/4") (unless otherwise indicated) Type "K" seamless, soft copper tubing, having the ability to be flared and in conformance with ASTM Specification B-88. Adapters shall be supplied as needed in reconnecting existing services.

2. Corporation Stop: Corporation stops shall be three quarter inch (3/4") (unless otherwise indicated) with inlet threads conforming to AWWA C-800, commonly known as the "Mueller" thread, and the outlet compatible with service pipe similar to Mueller No. H-1500 for copper service. Tapping saddles are required for all PVC pipe. Pipe dope or any other materials that contain solvents or components which may be harmful to PVC pipe shall not be used in conjunction with PVC pipe.

3. Tapping Saddles: Saddles shall have cc tap, be made of malleable material and have flat straps. Rubber gaskets shall be required for all pipe sizes and classes. Lead gaskets will not be allowed. Saddles shall provide full support around the circumference of the pipe and have a bearing area of sufficient width along the axis of the pipe, one and one half inch (1-1/2") minimum. Saddles shall not have lugs that will dig into the pipe when the saddle is tightened. The U-bolt type of strap that does not provide sufficient bearing area will not be allowed. Saddles shall be as the Dresser No. 91 double strap for C. I. diameters, or approved equal.

N. A post indicator valve shall be required on the exterior of all buildings equipped with a sprinkler system.

1.02 FACTORY TESTS AND COMPLIANCE STATEMENTS:

Pipe, valves and hydrants proposed for use shall be factory tested in accordance with the requirements of the applicable AWWA Standard referenced herein. The Contractor shall furnish sworn statements from the manufacturers that the inspection and tests specified in the referenced standards have been made and that the results of such inspection and tests, as well as the basic materials, manufacturing and assembly, comply with the requirements of the applicable standard. In addition, actual test results shall be submitted to the Engineer as directed. No pipe, valve or hydrant shall be considered for use in the contract until the manufacturer's certifications, and test results when required, have been approved by the Engineer.

1.03 HANDLING PIPE AND ACCESSORIES:

Pipe, fittings, valves and accessories shall be loaded and unloaded by lifting with hoists or skidding so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Pipe handled on skidways shall not be skidded or rolled against pipe already on the ground. In distributing the material at the site of the work, each piece shall be unloaded opposite or near the place where it is to be laid in the trench. Pipe shall be handled so that the coating and lining will not be damaged. Damaged coating and lining shall be cause for rejection of the pipe and shall be replaced or repaired.

1.04 LAYING PIPE:

A. Installation of pipe and fittings shall be in accordance with AWWA Standard C600 and BOCA Plumbing Code, except as specified or indicated otherwise. The water main shall be laid to a true uniform line and grade from elevations indicated or directed. Unless indicated otherwise, the depth of trench shall be sufficient to provide a minimum cover over the top of the pipe of three and one half feet (3.5') from the existing or proposed ground surface and to avoid interference of the pipeline with other utilities. Pipe shall be laid on continuous grades as indicated or directed to avoid sags or crests in the line.

B. The cutting of pipe for inserting valves, fittings or closure pieces shall be done in a neat and workmanlike manner, without damage to the pipe, so as to leave a smooth end at right angles to the axis of the pipe. Care shall be taken to avoid damaging the lining. Flame cutting of cast iron pipe with oxyacetylene torch will not be permitted.

C. Immediately before lowering the pipe in to the trench, the interior lining and exterior coating will be visually inspected. Pipe with damaged lining or coating shall not be installed.

D. Proper implements, tools and facilities for water main construction shall be provided and used. All pipes, fittings and valves shall be lowered carefully into the trenches by means of derricks, ropes or other suitable equipment. Under no circumstances shall water main materials be dropped or dumped into the trenches. All pipe shall be installed with the bell ends facing the direction of laying and in accordance with the recommendations of the manufacturers of the pipe.

E. Where it becomes necessary to deflect the line of pipe, in either a vertical or horizontal plane, to avoid obstructions, or in locations where long-radius curves are permitted, the amount of deflection shall not exceed that specified in AWWA Standard C600 or paragraph 2-17. Section 4. Deflection at Joints: (most strict standard will govern).

F. Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the line. If the pipe-laying crew cannot put the pipe into the trench and in place without

getting earth into it, a heavy, tightly woven canvas bag of suitable size shall be placed over each end of the pipe before lowering the pipe into the adjacent pipe. During laying operations, no debris, tools, clothing or other material shall be placed in the pipe.

G. At times when pipe laying is not in progress, the open ends of pipe shall be closed by a watertight plug, or other approved means. This provision shall apply during the noon hour as well as overnight. If water is in the trench, the seal shall remain in place until the trench is pumped completely dry.

H. All pipe in areas of fill shall not be laid until grading operation is complete unless the depth of cover is at least 12" below existing ground line for pipes of other materials.

1.05 TESTING, STERILIZATION, SERVICE CONNECTIONS

All testing, main sterilization and service connections shall conform to the applicable sections of Section 202.00 of the Town's PFM.

END OF SECTION

BID SHEET
TOWN OF WARRENTON
INDUSTRIAL PARK GRAVITY SEWER PROJECT

ITEM	BID QUANTITY	UNIT	BID PRICE	TOTAL
Mobilization	1	LS		
Site Clearing, Demolition, and Preparation	1	LS		
Erosion and Sediment Control				
Temporary Silt Fence	100	LF		
Sanitary Sewer Pipe (0’ – 8’ Deep)				
8” SDR 35	437	LF		
12” SDR 35	47	LF		
Sanitary Sewer Pipe (8’ – 12’ Deep)				
8” SDR 35	544	LF		
12” SDR 35	247	LF		
Sanitary Sewer Pipe (12’ – 20’ Deep)				
8” SDR 35	527	LF		
12” SDR 35	233	LF		
Sanitary Sewer Pipe (More than 20’ Deep)				
8” SDR 35	81	LF		
Sanitary Sewer Structures (0’ – 8’ Deep)				
MH-1	2	EA		
Sanitary Sewer Structures (8’ – 12’ Deep)				
MH-1	4	EA		
Sanitary Sewer Structures (12’ – 20’ Deep)				
MH-1	3	EA		
Sanitary Sewer Structures (More than 20’ Deep)				

MH-1	1	EA		
Inside Drop Manhole	1	EA		
Stubouts	5	EA		
Tie In to Existing Structure	2	EA		
Fill Existing Pump Basin	1	EA		
Asphalt Restoration	100	SY		
Fine Grade, Seeding, Mulching, and Restoration	1	LS		
			TOTAL BASE BID	

Optional Bid Items				
Optional Piping from Manhole 2 to Manhole 3				
12” SDR 35 (0-8’ Deep sections)	263	LF		
12” SDR 35 (8-12’ Deep Sections)	137	LF		
Manhole (8-12’ Deep)	1	EACH		
Inside Drop Manhole	1	EACH		
Concrete Encasement	25	LF		
Additional Costs for 8 “ C-900 PVC	460	LF		
Relocation of Water Lines	50	LF		
Undercut	25	CY		
Rock Excavation	50	CY		
			TOTAL OPTIONAL BID	

_____ _____

COMPANY TITLE

_____ _____

STREET PRINTED NAME

_____ _____

CITY, STATE, ZIP SIGNATURE DATE

INVITATION FOR BID

IFB NUMBER: 02-008 Addendum #1

DATE OF THIS ADDENDUM: December 17, 2001

DESCRIPTION: Industrial Park Gravity Sewer

BID OPENING DATE: Friday, December 21, 2001, 2:00 P.M.

For technical information relating to this IFB, please contact:

Christopher T. Bogert
Project Engineer
360 Falmouth Street
Warrenton, VA 20188
540-347-1858
Email: cbogert@ci.warrenton.va.us

For other information relating to this IFB, please contact:

Director of Purchasing
18 Court Street
P.O. Drawer 341
Warrenton, VA 20188
540-347-1102

1. The purpose of this addendum is to clarify a conflict in the wording of this bid package to all the recipients of the Invitation for Bid, Industrial park Gravity Sewer IFB 02-008, Dated December 7, 2001. The change is as follows:

   Please note that in Section 118, Part 2.01, page 29, and Section 119, Part 3.02, page 31, the specifications read that all excavation is **unclassified.** However, by making "Rock Excavation" a separate bid item we classify the excavation. The Bid Sheet will remain the same with "Rock" being the only classified type of excavation. Note that "Rock Excavation" is material that cannot be removed with a Caterpillar 235 Hoe, or equivalent. It includes

material removed with a "Hoe-Ram" or by blasting.

2. The optional portion of piping, from Manhole 2 to Manhole 3, has no additional option bid for Fine Grading, Seeding, Mulching, and Restoration. A corrected Bid sheet has been included and should be used for the bid to include this additional work as a separate item. The description provided in the main project section will be the same for this item.

3. All other terms and conditions for the Invitation for Bid, dated December 7, 2001, remain the same.

4. **All bidders should sign the statement at the bottom of the corrected bid sheet indicating that they received Addendum #1 dated December 17, 2001.**

INVITATION FOR BID

IFB NUMBER: 02-008 Addendum #2

DATE OF THIS ADDENDUM: December 18, 2001

DESCRIPTION: Industrial Park Gravity Sewer

BID OPENING DATE: Friday, December 28, 2001, 2:00 P.M.

For technical information relating to this IFB, please contact:

Christopher T. Bogert
Project Engineer
360 Falmouth Street
Warrenton, VA 20188
540-347-1858
Email: cbogert@ci.warrenton.va.us

For other information relating to this IFB, please contact:

Director of Purchasing
18 Court Street
P.O. Drawer 341
Warrenton, VA 20188
540-347-1102

5. The purpose of this addendum is to extend the bid opening date from December 21, 2001 to Friday, December 28, 2001, at 2:00 PM.

6. All other terms and conditions for the Invitation for Bid, dated December 7, 2001, and Addendum #1, dated December 17, 2001, remain the same.

7. **All bidders should sign a statement at the bottom of the corrected bid sheet indicating that they received Addendum #1, dated December 17, and Addendum #2 dated December 18, 2001. All bids should be signed and sealed in an envelope plainly marked on the outside, "Sealed Bid on Industrial Park Gravity Sewer Project To be Opened December 28, 2001, at 2:00 PM." and shall be forwarded to the Purchasing Director.**